



## **EMC Test Report**

Reference number: EMC-240202

Customer: PEEK Kft. 1116 Budapest, Fehérvári út 132-148.

Contact person: Istvan POKORADI GSM: +36 302507559

Tested Products: PEEK TO POWER System's data collection module  
Type: DTU 2 S/N: prototype

Environmental conditions: Temperature: 19 °C ; Humidity: 70%

Date of the tests: 02/02/2024

Participants in the tests on behalf of the T-Network Kft. EMC Test Laboratory, Budapest, Hungary:

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Ferenc DEMETER

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Sandor TATAR EMC Laboratory Leader

On behalf of the PEEK Kft. accepts the test results and taking over the EMC Test Report:

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Istvan POKORADI

<b>T-Network Ltd.</b> H-1142 Budapest, Ungvár u. 64-66. Phone: (361) 460 9000 FAX: (361) 460 9001 E-mail: <a href="mailto:tnetwork@tnetwork.hu">tnetwork@tnetwork.hu</a> <a href="http://www.tnetwork.hu">http://www.tnetwork.hu</a>		<b>Registration number:</b> 01-09-366996 Ref. number: EMC-240202 Prepared by: Sandor TATAR page: 1/6
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## Summary of the test results

Description of the tests	Limits and test levels in the related Standard	Evaluation
<b>Disturbance emission measurement</b>		
Radiated RF emission measurement 30-6000 MHz	<b>EN 61000-6-4:2019, FCC Part 15</b> EN 55016-2-3:2017+A1:2019, Class A, 30-6000 MHz	<b>Passed</b>
<b>Immunity tests</b>		
Immunity test against radiated RF disturbances	<b>EN 61000-6-2:2019</b> , EN 61000-4-3:2020 10 V/m 0.08-6 GHz Modulation: sinus 1kHz, 80% AM	<b>Passed</b>
Immunity test against ESD (electrostatic discharges)	<b>EN 61000-6-2:2019</b> , EN 61000-4-2:2009 ±8kV air, ± 4kV contact	<b>Passed</b>

**The evaluation relates exclusively to the tested DTU 2 and is valid for equally manufactured products only.**

### Operational conditions during the tests:

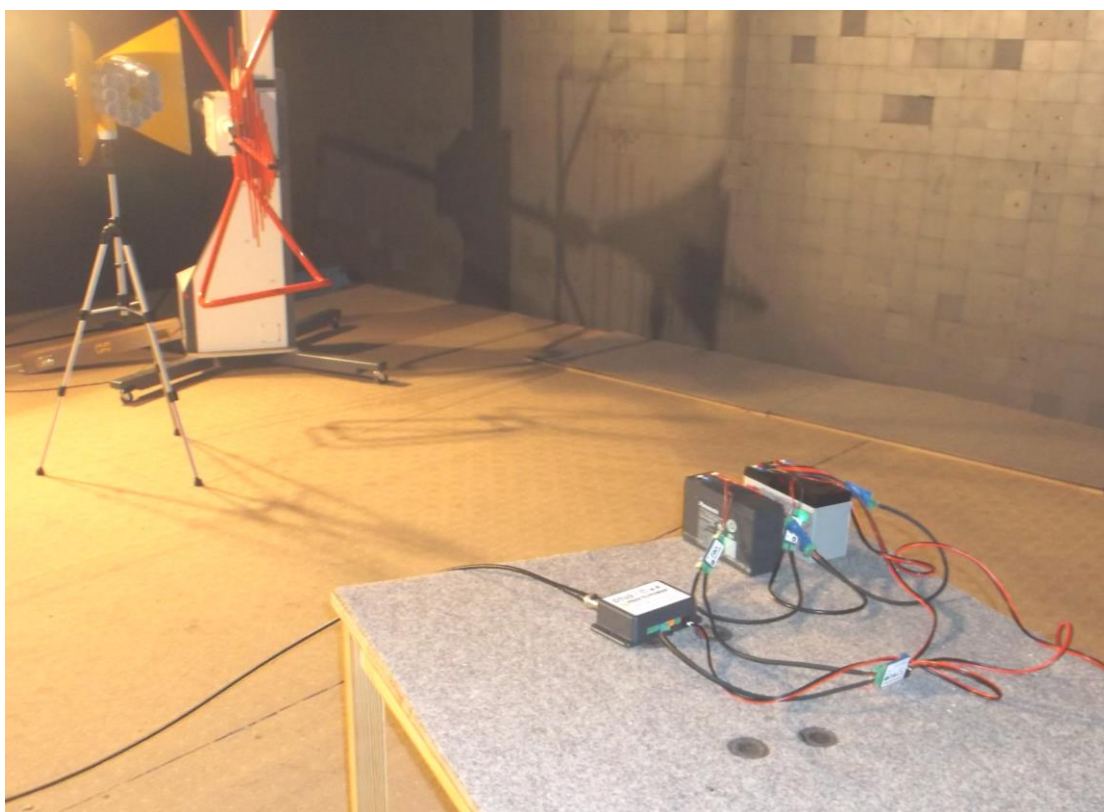
The DTU 2 operated continuously in GSM connection from 12 V rechargeable battery and from mains DC adaptor also that is not accessory of the product.

During the immunity tests, the operation was checked with a tablet.

### 1. Radiated RF emission measurement

The applied limit values were according to the EN 61000-6-4:2019 and FCC Part 15.

The limit lines in the diagrams below relate to quasi peak measurement at 3m antenna distance and were calculated from the values given for 10m distance in the related Standards.



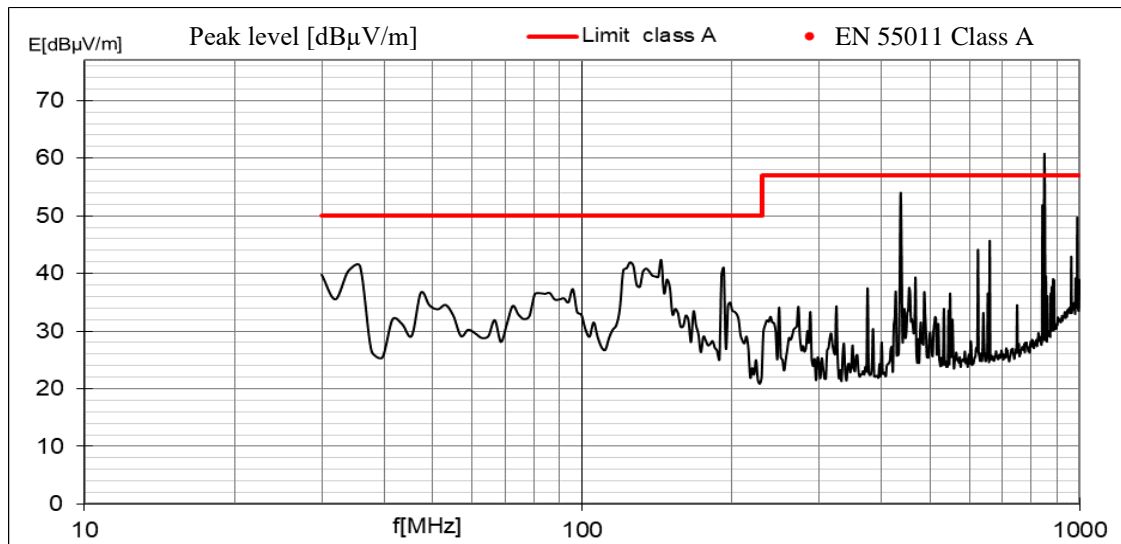
The DTU 2 on the test site

## Test equipment:

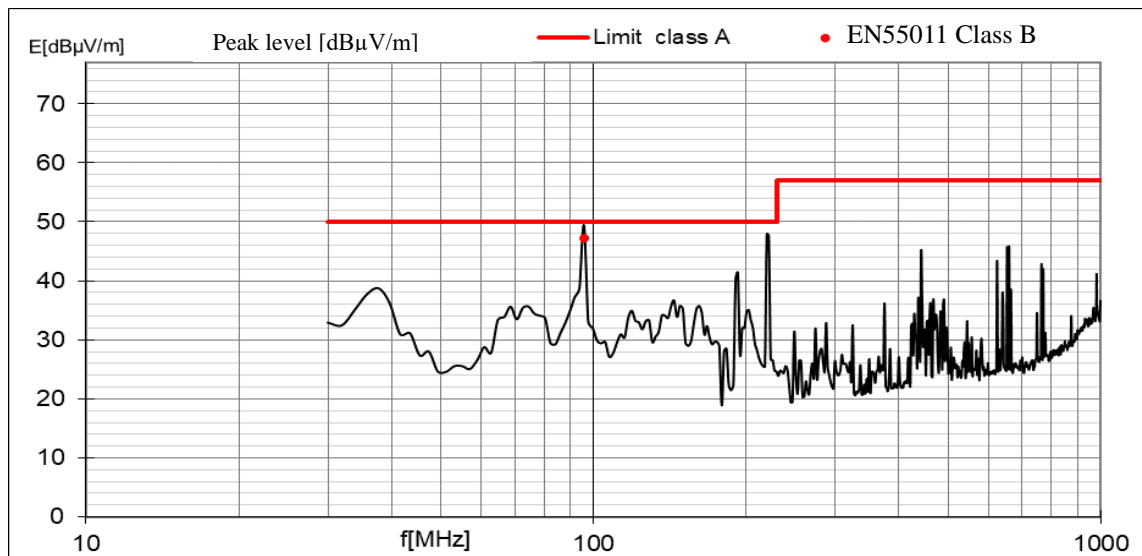
Device name	Type	S/N	Calibration expires
Spectrum Analyzer	FSP13 R&S	100273	2027 December
Receiver Antenna	Sunol JB1	A121307	2025 January
Antenna MAST	INN-CO, MA4000-EP	222/18061207/L	-
MAST controller	INN-CO, CO-2000	462/18061207/L	-
Test Chamber	T-Network SAR	-	2028 January

**Test setup and method:** as per the EN 61000-6-4:2019, antenna distance: 3m.

### 1.1 Radiated RF disturbance, operation from battery, at antenna polarization V and H

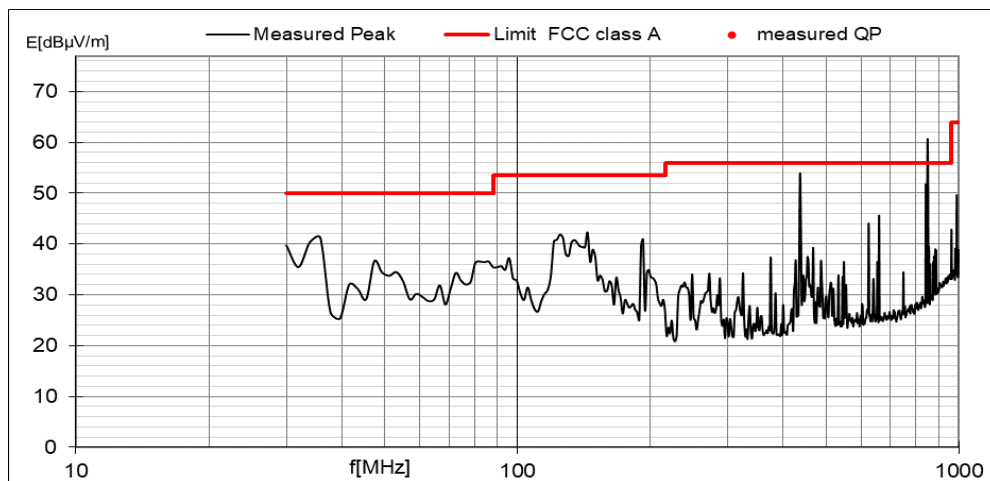


### 1.2 Radiated RF disturbance, operation from 230 V adaptor at antenna polarization V and H

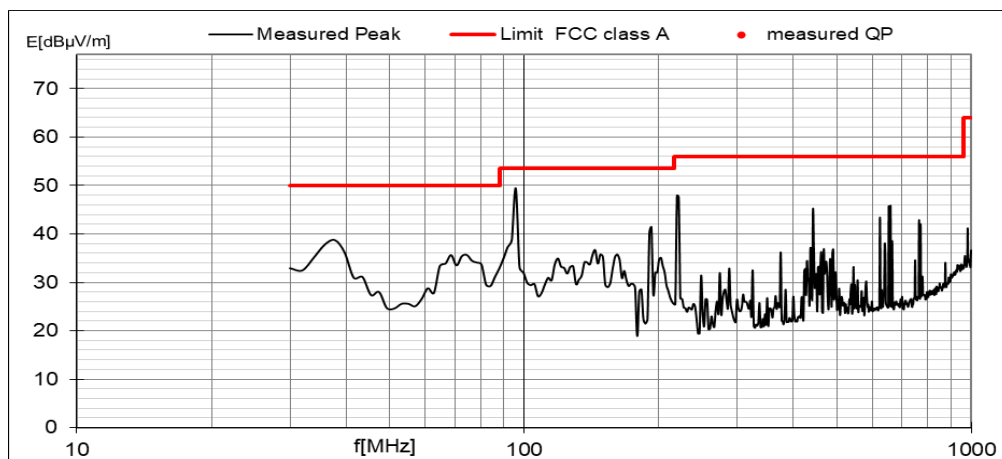


f [MHz]	QP [dBμV/m]	Height [cm]	Polarization	Angle [deg]	QP Limit [dBμV/m]	Margin [dB]
96,339	47,13	150	PV	0	50	2,87

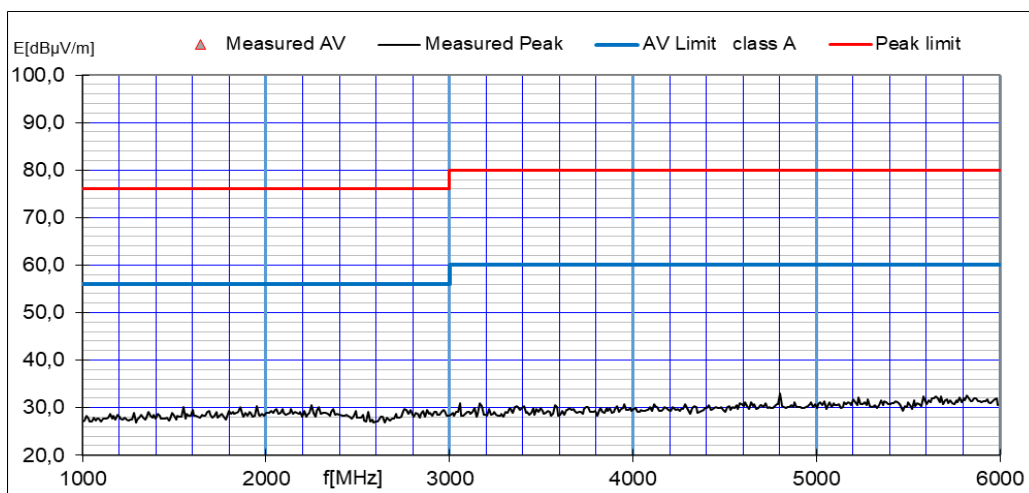
### 1.3 Radiated RF disturbance, operation from battery at antenna polarization V and H



### 1.4 Radiated RF disturbance, operation from 230 V adaptor at antenna polarization V and H



### 1.5 Radiated RF disturbance, operation from battery at antenna polarization V and H



#### Evaluation of the measurements' result:

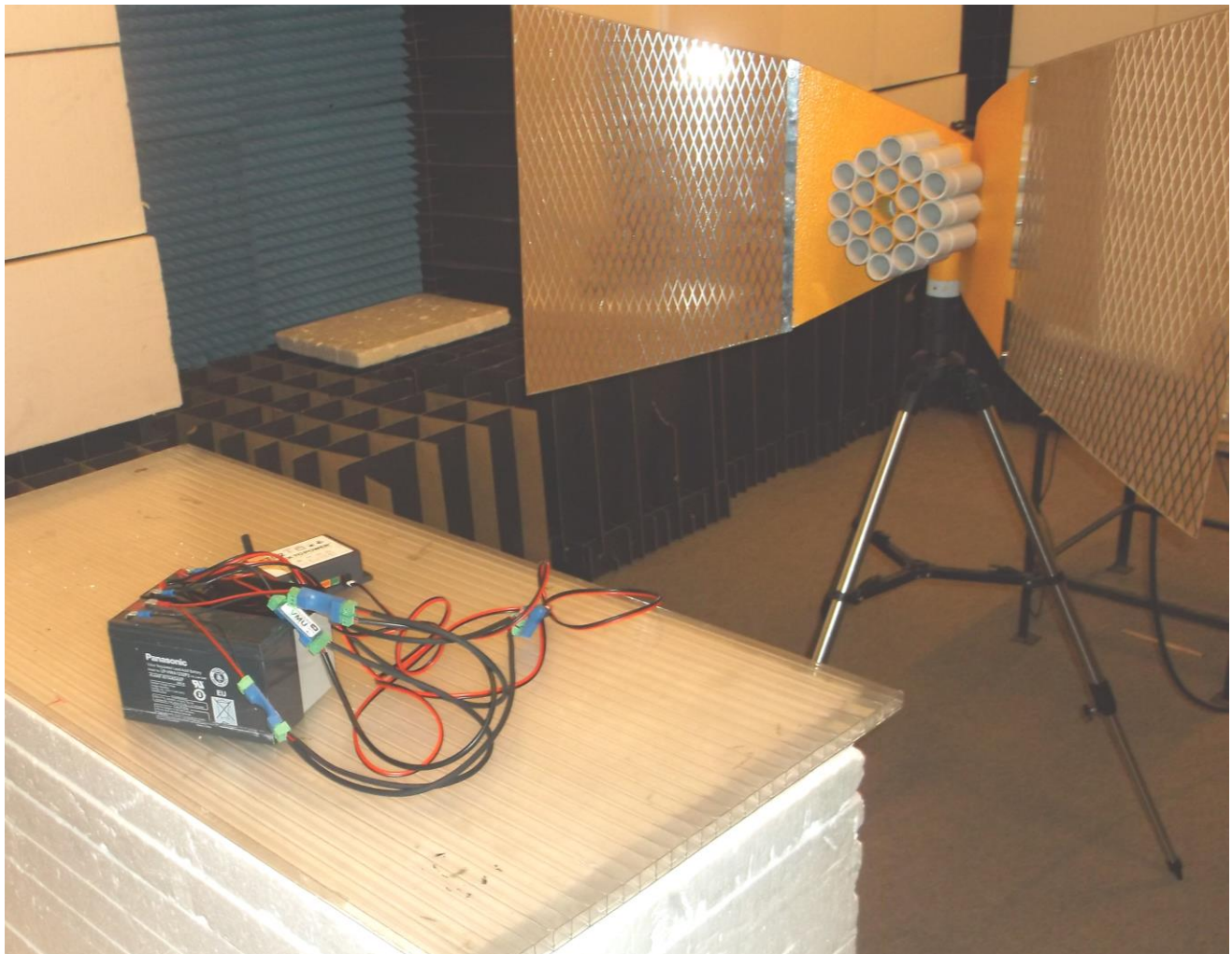
The DTU 2 fulfills the EN 61000-6-4:2019 and the FCC Part 15 requirements.

The 840 MHz spectrum component belongs to the GSM communication.

## 2. Immunity test against radiated RF disturbances

The test method was according to the related EN 61000-4-3:2020 Standard

The test signal was 10V/m 0.08-6 GHz; with sinus 1 kHz 80 % AM as per the EN 61000-6-2:2019.



The DTU 2 under the 0.08 – 6 GHz test

### Test equipment:

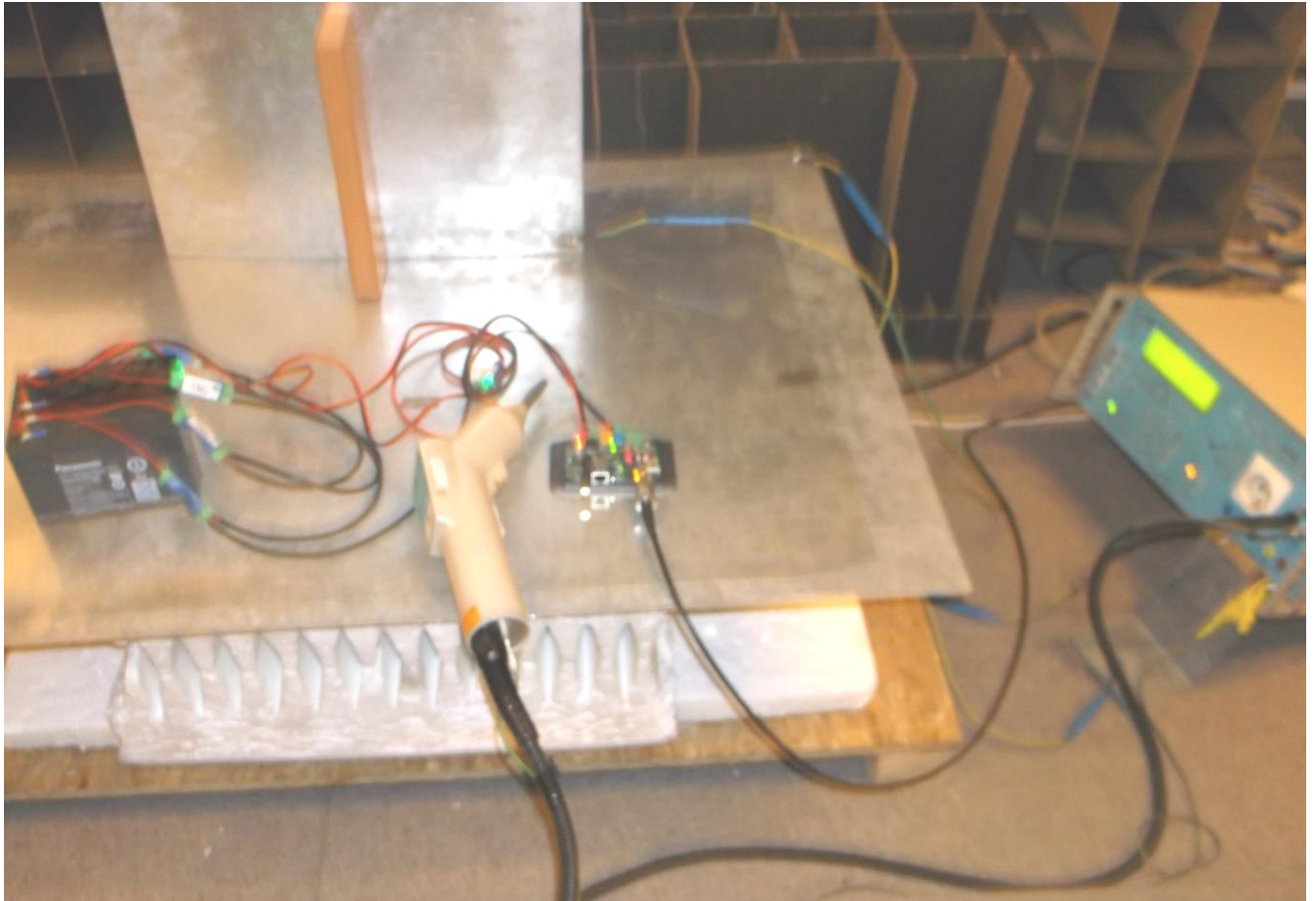
Devices	Type	S/N	Calibration expires
Generator 1-6 GHz	Triarchy VSG6G1C	CN62800558	2026 October
Antenna 1-6 GHz	T-N/CVA+PCB	02/2022	2026 June
Amplifier 1-6 GHz	T-N 25W	01/2022	-
Test Chamber	T-Network FAR	-	2028 January

**Evaluation of the test result:** The DTU 2 operated perfectly during the test.



### 3. Electrostatic Discharge (ESD) Test

The test method was according to the related EN 61000-4-2:2009 Standard. The test voltages were  $\pm 8$  kV air and  $\pm 4$  kV contact discharges as per the EN 61000-6-2:2019 Standard.



The DTU 2 under the ESD test

#### Test equipment:

Device name	Type	S/N	Calibration expires
CWG Generator	EMC Partner TRA-2000	969	2024 September
ESD Pistol	EMC Partner ESD2000	0360	2024 September
Test Chamber	T-Network FAR	-	2028 January

$\pm 4$  kV contact discharges were applied ten times to horizontal and vertical coupling plate according to the related Standard. Further ten  $\pm 4$  kV contact discharges were performed to the DTU 2's touchable metal parts. Ten  $\pm 8$  kV air discharges were applied to its nonconductive parts.

**Evaluation of the test result:** The DTU 2 operated perfectly during the test.